

Attorney Docket No.: C4307(C)  
Serial No.: 10/561,563  
Filed: June 8, 2006  
Confirmation No.: 9912

### REMARKS

Reconsideration of the application, as amended, is respectfully requested.

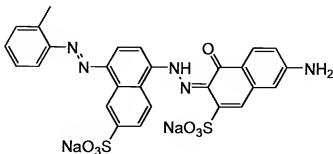
The claims have been amended to obviate the Examiner's objections. Furthermore, the claims are now limited to bis-azo dyes and no longer recite the tris-azo dyes. The specification and the claims were amended to recite --phenyl-- instead of "benzyl" and --sulphonate-- in place of sulphate in the formula for bis-azo dye.

Support for the substitution of "benzyl" to --phenyl--:

The definition of "Y" in the generic formula contains an error in that "benzyl" is recited rather than --phenyl-- which is what was intended. This is a common error because of the similarity of the words benzene (i.e., phenyl or  $C_6H_5-$ ) and benzyl ( $C_6H_5CH_2OH$ ).

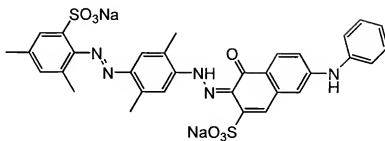
Direct violet dyes 5, 7, 11, 31, 51 are given in the text (specification, page 32, lines 9-10) as examples for the structure for the bis-azo dyes. The following are structures of direct violet dyes 5, 7, 11, 31, 51. Please note that Y is always phenyl or naphthyl group and never benzyl.

DIRECT VIOLET 5 (Y = PHENYL)

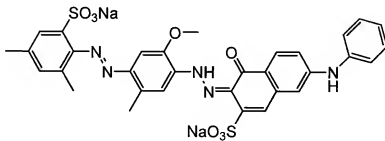


Attorney Docket No.:	C4307(C)
Serial No.:	10/561,563
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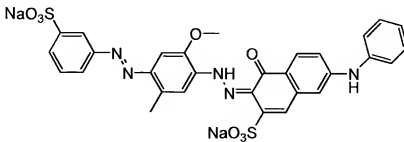
DIRECT VIOLET 7 (Y = PHENYL)



DIRECT VIOLET 51 (Y = PHENYL)

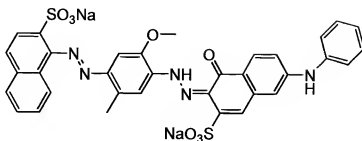


DIRECT VIOLET 31 (Y = PHENYL)



Attorney Docket No.: C4307(C)  
Serial No.: 10/561,563  
Filed: June 8, 2006  
Confirmation No.: 9912

DIRECT VIOLET 11 (Y = NAPHTHYL)



Applicants further enclose copies of pages from the colour index international website which show the structure of some azo dyes. These confirm the structures of direct violet 5, direct violet 7, direct violet 51, direct violet 31, and direct violet 11. The remaining pages from the colour index international website show other azo dyes which have phenyl, not benzyl, group as a direct substitute to an azo coupling R-N=N-R; namely, direct violet 9, direct violet 40, direct violet 35, and direct violet 26. The azo in all cases is directly bound to an aromatic group; a result of the mechanism of aromatic electrophilic substitution.

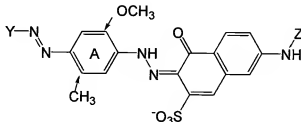
Applicants enclose sections from two organic chemistry books: Organic Chemistry by T. W. Solomons (1992), pages 856 to 858, and Advanced Organic Chemistry by Jerry March (1992), pages 501 to 506. T. W. Solomons discloses the coupling reactions to make azo compounds and reference is made to the bottom of page 857 where it is clearly shown that the reaction results in azo coupling of phenyl group (R-N=N-R). The reason for this is elaborated in Jerry March's Advanced Organic Chemistry in the chapter concerning aromatic electrophilic substitution. The attacking species is an electrophile and hence coupling to form an azo compound where R is a benzyl (as mistakenly stated prior) is simply inconceivable.

Attorney Docket No.: C4307(C)  
Serial No.: 10/561,563  
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This common general knowledge taken with the examples under the generic structures, can lead to no other conclusion that benzyl was in error and no other group could exist except phenyl or naphthyl.

Support for Substitution of "sulphate" to --sulphonate--:

The term "sulphate" as used in the claims and disclosure is also an error and should have read --sulphonate--. The term "sulphate group" is only used in respect of dyes of the following formula:



The use is inconsistent with the disclosure as a whole. Direct violet 5, 7, 11, 31, and 51 all have a sulphonate substitution and **not** a sulphate. Further, applicants are not aware of any dye that has a sulphate group. The paragraph bridging pages 4 and 5 discusses dyes and it is clear to one of ordinary skill in the art that the invention is concerned with the use of known dyes and hence one of ordinary skill in the art of dyes would understand that sulphonate is the only group intended. This is an obvious mistake in light of the disclosure and reference is made to the structures exemplified above in which sulphonate groups are clearly depicted.

Claims 1-4 and 6-11 were rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Trimmer et al., U.S. Patent No. 3,755,201. The amended claims distinguish more clearly over Trimmer.

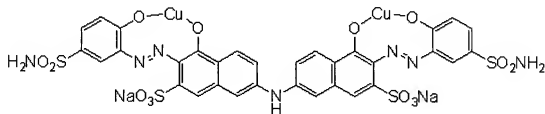
Trimmer discloses the use of a class of dyes, which are all of a similar structure, and another class of dyes which are transition metal complexes (Co and

Attorney Docket No.: C4307(C)  
Serial No.: 10/561,563  
Filed: June 8, 2006  
Confirmation No.: 9912

Cu). The non-transition metal complex dyes in Trimmer are bright dyes. Transition metal complexes are not compatible with sequestrants. Sequestrants are ubiquitous adjuncts in laundry compositions, for example ethylene diamine tetraacetic acid (EDTA). One of ordinary skill in the art would have known that a sequestrant would sequester the transition metal of the dye and change the nature of the dye chromophore.

The Examiner alleged that a simple substitution of one dye for another is all that is required to arrive at the present invention. Applicants respectfully disagree. Direct violet 66, a bis-copper complex of a disazo dye, and other copper dyes disclosed by Trimmer have not been used for comparison in the present application because they are transition metal complexes and undesirable as discussed above. Direct violet 66 does not belong to the same family of dyes as claimed in the present application.

Direct Violet 66 is of the following structure:



There are a plethora of dyes. Within the classes of direct blue and direct violet dyes there are 313 and 108 compounds listed by the colour index (Society of Dyers and Colourists and American Association of Textile Chemists and Colorists 2002) respectively. More compounds are known but not listed by the index. Blue and violets dyes cover a huge number of dye structures and types, for example: azo, metal-complex azo, thiazole, stilbene, phthalocyanine, triarylmethane and oxazine. Within the azo class there are many different types of azo dyes. The selection of a dye for a laundry application is complex because one has to consider: a) interaction

Attorney Docket No.: C4307(C)  
Serial No.: 10/561,563  
Filed: June 8, 2006  
Confirmation No.: 9912

with other components, b) substantivity to cloth, c) exact colour perception by a consumer, safety/environmental concerns, and d) storage stability.

The dyes recited in the claims of the present application reflect a relatively small class of dyes compared to all those that are available. The known dyes included the claims of the present application are dull to normal color dyes as stated in the color index (Society of Dyers and Colourists and American Association of Textile Chemists and Colorists 2002). However, these dull to normal color dyes as disclosed in the claims of the present application have a greater efficacy over dyes which are known as bright dyes, as illustrated by the results on page 30, table 3, which are discussed later. This is surprising, because it is the bright dyes that would have been expected to have greater efficacy in shading rather than dull to normal color dyes. One of ordinary skill in the art would have selected bright dyes, **not dull to normal colored** dyes for maintenance of brilliant white.

The Examiner is referred to page 30, table 3, of the present application in which dyes are compared to direct blue 1. Direct blue 1 (a bright dye) of the prior art was found to provide a Ganz whiteness of 190 whereas direct violet 51 (a bluish violet dye i.e., a dull violet) provide a Ganz whiteness of 208 when used under same conditions. This is a surprising and unexpected result.

Acid Blue 205 (structure not disclosed in the Colour Index) is described as a bright blue Anthraquinone dye in the color index (copy of which is provided). Applicants also enclose WO2006/102984 which shows in the experimental (pages 8 and 9) that Acid blue 205 is less substantive (deposition) than Acid Black 1 and therefore by comparison with the Experimental in the present application (Acid Black 1 vs. Direct Violet 51—Table 1—page 29) shows that Direct dyes are more substantive than both acid black and acid blue dyes.

Attorney Docket No.: C4307(C)  
Serial No.: 10/561,563  
Filed: June 8, 2006  
Confirmation No.: 9912

The dyes claimed by the present application overcome the problems associated with the disclosure of Trimmer and are non-obvious over Trimmer because of greater efficacy and resistance to sequestrants. It is respectfully requested that the rejection be reconsidered and withdrawn.

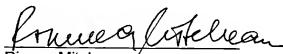
With respect to the double-patenting rejection, in light of the availability of Terminal Disclaimer practice, applicants agree to the filing of the Terminal Disclaimer upon an indication of the allowable subject matter.

Applicants respectfully request the Examiner's acknowledgement of documents submitted in support of the present amendment with a Fourth Supplemental Information Disclosure Statement submitted concurrently.

In light of the above amendments and remarks, it is respectfully requested that the application be allowed to issue.

If a telephone conversation would be of assistance in advancing the prosecution of the present application, applicants' undersigned attorney invites the Examiner to telephone at the number provided.

Respectfully submitted,

  
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